

Work Order ID 83843

83843

Page 1

May-29-12 1:57:13 PM

Item ID: D350-636-011

Accept

N900040100

Setup Start ***NS1***

Revision ID:

Stop ***NS2***

Item Name: Skidtube LH

Start Date: 4/26/12 Start Qty: 1.00

1

Cust Item ID:

Required Date: 5/04/12 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan: ✓ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D2750	F
-------	---

D3492	C
-------	---

100

0.00

100

DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy blue file and type labels per PPP D350-636-011 CHG 006

[Handwritten signature]

JB

S. Balu

[Handwritten signature] MLS 12-6-11

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Required Date: 5/04/12 Req'd Qty: 1.00

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Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110		0.00							
110	Skidtubes								
Skidtubes	Memo	0.00							
Skidtubes	1- Pick D2600-3 Bent								
	2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D2750								
	3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500", deburr.								
	4- Locate DT8330 off of blade fitting bolt holes and drill pilot holes for blade fitting								
	5- Drill only two fwd step holes using DT9616. Ensure proper positioning.								
	6- Drill pilot holes as per Dwg D2750 sheet 4 (D2750-1 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail B)								
	7- Clecko DT8863B on second side of tube and drill pilot holes for detail B. ***SECOND SIDE***								
	8-Open up holes for Detail B to 0.375" (4 holes per side) and blade fitting location holes to 0.500" (total of 4 holes per side) as per dwg D2750 .Open up holes for ground handling and detail C to 0.500" (8 holes per side)								
	9-Drill pilot holes for wearplates as per Dwg D2750 using DT8108 open to 0.297".								
	10-Open up holes of Detail A to 0.297" (total of 2 holes per side)								

Signing For GH
- DC 12/04/30

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Start Date: 4/26/12 Start Qty: 1.00 *1*

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Required Date: 5/04/12 Req'd Qty: 1.00 *1*

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Reference:

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Run Start *NR1*

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Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

11-Weld D2744 Cap as per Dwg D2750 and QSI 004. Fill grooves in bend left from bending as per QSI 004

A/R Aluminum Rod batch: 120854

12-Grind welds flush as per Dwg D2750

→

BE 12/01/30
CF 12-5-1

120

QC10- Inspect visual per QSI004- ground welds

0.00

120

QC

Memo

0.00

Quality Control

5/21/12

12-5-2

130

QC5- Inspect part completeness to step on W/O

0.00

130

QC

Memo

0.00

Quality Control

5/21/12

12-5-2

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Required Date: 5/04/12 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	Chemical Conversion Coat per QSI005 4.1	0.00							
140									
HandFinish	Memo	0.00							
Hand Finishing									
150	QC7-Inspect Chemical Conversion Coat	0.00							
150									
QC	Memo	0.00							
Quality Control									

DC 12-5-2

DP 12-5-2

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Item Name: Skidtube LH

Start Date: 4/26/12 Start Qty: 1.00 ***1***

Cust Item ID:

Required Date: 5/04/12 Req'd Qty: 1.00 ***1***

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	Skidtubes	0.00							
160									
Skidtubes	Memo	0.00							
Skidtubes	1-Open up holes of Detail C and ground handling to 0.625" (total of 8 holes per side) as per dwg D2750.								
	2-Open up holes of Detail B to 0.750" (total of 4 holes per side) as per dwg D2750.								
	3- Open float hole to 0.500" (4 per side)								
	4-Chamfer holes of Detail B, C, ground handling and float holes per dwg D2750 (welding instructions on sheet 8)								
	5-Deburr and blow out all chips from inside of tube								
	6- Prepare tube for welding, remove alodine as required.								
	7-Bond web D2739 in place as per QSI 015 A/R Sikaflex-291 batch: <u>12/221</u> exp. date: <u>13/01/04</u>								
	8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D2750 & QSI004 (welding instructions on sheet 8) A/R Aluminum Rod batch: <u>M120854</u>								
	9- At section AJ-AJ drill out x-bolt spacer to 0.404"								
	10-Grind welds flush as per Dwg D2750								

DC 12/05/03

BE 12-05-07

CC/DC

12-5-8

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start ***NR1***

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
	11-Spot face ground handling holes section (total of 4 places per side) as per dwg D2750								
	12-Deburr holes								
170	QC10- Inspect visual per QSI004- ground welds	0.00							
170									
QC	Memo	0.00							
Quality Control									
180	QC5- Inspect part completeness to step on W/O	0.00							
180									
QC	Memo	0.00							
Quality Control									

CC/DC 12-5-8

8/26/08

8/26/08

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Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
190	Pressure Wash per QSI005 4.3	0.00							
190									
HandFinish	Memo	0.00							
Hand Finishing	Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.								
200	White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum	0.00							
200									
Powdercoat	Memo	0.00							
Powder Coating	START TIME: 7:40 OVEN TEMPERATURE: 320°F FINISH TIME: 8:10								
210	QC3- Inspect Part Finish	0.00							
210									
QC	Memo	0.00							
Quality Control	Inspect for foreign object per QSI 024								

1 7/5 12-5-8

1X 12/05/09

1x 12/05/10

M 12/1/34

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Required Date: 5/04/12 Req'd Qty: 1.00 ***1***

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Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start ***NR1***

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop ***NR2***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220		0.00							
220	HandFinishing					1	8	(28)	12/05/10
HandFinish	Memo	0.00							
Hand Finishing	1- Install inserts as per Dwg D2750								
230		0.00							
230	HandFinishing					1	8	(28)	12/05/10
HandFinish	Memo	0.00							
Hand Finishing	1-Inspect for Foreign Objects								
	2-Spray inside of tube with "LPS-3" batch: <u>N/A</u>								
	3-Install blade fitting D3488-041, wearshoes and ground handling hardware as per dwg D2750 SIKA FLEX 241 BATCH: <u>121221</u> EXP DATE: <u>13/01</u>								
	4-assemble o'ring to plug as per dwg D3492 and apply o'ring lube A/R 55-o'ring lube batch: <u>110348</u>								
	5-Coat all exposed fasteners with "LPS Procyon" batch: <u>114596</u>								

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Cust Item ID:

Required Date: 5/04/12 Req'd Qty: 1.00

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Customer:

Reference:

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Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240	QC5- Inspect part completeness to step on W/O	0.00							
240									
QC	Memo	0.00							Pro →
Quality Control									
250	Pick Kit	0.00							
250									
Packaging	Memo	0.00							12/06/08 JB
Packaging									
260	QC4- 100% Inspect kits for completeness	0.00							
260									
QC	Memo	0.00							
Quality Control	*****ensure antiseize is on AN8C21A bolts*****								

W/O:

83843

WORK ORDER CHANGES

DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: D350-636-011 PAR #: _____ Fault Category: Skid tube NCR: Yes No DQA: Aut Date: 12/06/16
 Resolution: Re-work Disposition: Re-work QA: N/C Closed Date: 12/16/18

NCR: <u>12-1509</u>		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
		During assembly it was found that the blade fitting is not fitting to the skid tube. RL Blade fitting not matching	CP 12.05.30	open all 5 aft holes to max tol. as per Doug + Debarr touch up holes with Alodine as per 052005	<u>[Signature]</u> 12-5-30 12-5-30	S 11/05/30	CP 12.05.30	S 12/05/18
		hand drilled skid tube Dross / tol. hand drilled	CP 12.05.30	open up all saddle + aft holes in Blade fitting to max tol. touch up holes with Alodine as per 052005	<u>[Signature]</u> 12-5-30 12-5-30	S 11/05/30	CP 12.05.30	S 12/05/18

NOTE: Date & initial all entries

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Cust Item ID:

Required Date: 5/04/12 Req'd Qty: 1.00

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Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
270	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	Package as per PPP D350-636-011								
280		0.00							
280	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00							
Quality Control									

12/6/14

ME 12-06-13

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Parent Item: D350-636-011

Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:I 02.09.25 Rearranged procedure steps KJ
 IPP Rev:J 06-03-23 As per Rev D JLM
 IPP Rev:K 06-07.13 As per dsi9343 EC
 IPP Rev:L 07-07-28 Added SS Wearplates(Rev E) JLM Verf:EC
 IPP Rev:M 08-04-22 update steps 4, 13 DD verified by:EC
 IPP Rev:N 08-09-23 revF as per dwg DD verified by:ec
 IPP Rev:O 09-02-06 apply antiseize on AN8C21A bolts as per PAR09-010 DD
 verf:EC IPP Rev:P 10.06.22 revise seq110 DD
 verf:EC IPP Rev:Q 10.10.01 as per IIN revH DD verf:EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D3492-1 Plug		Manufactured	No			230	Each	265.0000	8	8		12/05/10	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				FP002		242							
				69531		8							
				74444		2							
				76235		4							
				83259		228							
				FP-A		23							
				83098 ✓		23							
D3492-3 Plug		Manufactured	No			230	Each	175.0000	8	8		12/05/10	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				FP-A		175							
				81967		5							
				83099 ✓		48							
				83529		122							

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Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

NAS1611-010

Purchased

No

230

Each

188.0000

8

8

O-RING

Location

Loc Qty

Loc Code

FP001

188

110915

14

117460

8

118077

1

118612

3

119438

47

121259

2

121415 ✓

4

121584

59

121723

50

~~8~~ ~~8~~ 12/05/10

NAS1149D0863J

Purchased

No

250

Each

251.0000

2

WASHER

Location

Loc Qty

Loc Code

ST298

251

118078

34

119307

17

120308

100

121556

100

~~2~~ ~~2~~ 12/06/08

119307

D2744

Manufactured

No

110

Each

35.0000

1

1

Cap

Location

Loc Qty

Loc Code

LG002

35

62715

1

78900

3

83412

31

12/04/30

1

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Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

D2600-3-BENT

Manufactured No

110

Each

29.0000

1

1

Extrusion Bent

Location

Loc Qty

Loc Code

LG

29

66875

7

73253

1

75021

1

75022

1

75023

1

81330

4

83305

1

83442

13

①

Signing For
GH

Di 2-4-30

D2743

Manufactured No

160

Each

296.0000

8

8

Crossbolt Spacer

Location

Loc Qty

Loc Code

LG

12

81965

55

83262

167

LG001

284

67766

4

68251

3

73403

64

74445

1

79517

2

8

D2739

Manufactured No

160

Each

14.0000

1

350 I Beam

Location

Loc Qty

Loc Code

LG

14

72155

1

81508

1

83447

5

83448

5

83548

2

B83448

12/05/03

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Parent Item: D350-636-011

Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

D3490-3 Manufactured No

160 Each 46.0000

4 4

BE 12/05/07

Location	Loc Qty	Loc Code
LG001	46	
83313	46	

4

D3490-1 Manufactured No

160 Each 45.0000

4 4

BE 12/05/07

Location	Loc Qty	Loc Code
LG	2	
81976	2	
LG001	43	
62450	2	
74875	4	
77042	3	
83269	34	

4

ALS4-1032-225 Purchased No

220 Each 837.0000

38 38

38 2P 12/05/10

Location	Loc Qty	Loc Code
ST281	814	
108696	146	
110768	62	
118386	55	
118966	68	
121269	483	
ST282	23	
120410	10	
120451	13	

D3793-3 Manufactured No

230 Each 28.0000

1 1

1 2P 12/05/10

Location	Loc Qty	Loc Code
FP001	28	
83394	16	
83901	12	

82/106

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Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

AN8C35A BOLT Purchased No 230 Each 69.0000 1 1 28 12/05/10

Location	Loc Qty	Loc Code
FP002	68	
115960	1	
118286 ✓	17	
121275	50	
ST346	1	
114442	0	
115188	0	
115960	1	

D3793-1 Wearshoe Manufactured No 230 Each 29.0000 1 1 28 12/05/10

Location	Loc Qty	Loc Code
FP001	29	
82171	2	
83393 ✓	14	
83903	13	

D3488-041 Blade Fitting Assembly, LH Manufactured No 230 Each 10.0000 1 1 28 12/05/10

Location	Loc Qty	Loc Code
FP002	10	
61689	1	
82271 ✓	9	

D3794-3 Gasket Manufactured No 230 Each 24.0000 1 1 28 12/05/10

Location	Loc Qty	Loc Code
FP	22	
83396 ✓	22	
FP002	2	
74530	2	

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Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

AN6C44A
BOLT

Purchased No

230 Each 90.0000

4 4 20 12/05/10

Location	Loc Qty	Loc Code
FG	2	
103964	2	
ST343	88	
121013	11	
121167 ✓	17	
121440	50	
121689	10	

MS21083C8
NUT

Purchased No

230 Each 86.0000

1 1 20 12/05/10

Location	Loc Qty	Loc Code
304	80	
121185 ✓	30	
121349	50	
FP002	1	
115884	1	
ST303	4	
115884	0	
118077	1	
119309	2	
119638	1	
ST304	1	
121524	1	

D3536-25
Gasket

Manufactured No

230 Each 29.0000

1 1 20 12/05/10

Location	Loc Qty	Loc Code
FP	29	
83391 ✓	13	
83900	16	

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Parent Item: D350-636-011

Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

D3631-1 Manufactured No 230 Each 355.0000 8 8 12/05/10

Washer

Location	Loc Qty	Loc Code
FG	340	
81874	2	
83588	338	
ST072	15	
68062	2	
75548	13	

D3791-1 Manufactured No 230 Each 18.0000 1 1 12/05/10

Wearplate

Location	Loc Qty	Loc Code
FP002	18	
62239	2	
83392	16	

AN960C10L washer ~~NAS1149C0332R~~ Purchased No 230 Each 0.0000 38 38 12/05/10

D2745 Bushing Manufactured No 230 Each 130.0000 8 8 12/05/10

Location	Loc Qty	Loc Code
FP	6	
79518	6	
FP001	124	
69529	1	
76142	1	
83260	122	

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Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

AN3C5A Purchased No 230 Each 1,340.0000

Bolt

34 34 12/05/10

Location	Loc Qty	Loc Code
FP001	7	
115835	7	
ST350	1333	
116419	28	
117343	13	
117764	7	
117872	2	
119749	23	
120423	28	
121068	12	
121255	500	
121444 ✓	220	
121708	500	

D3537-1 Manufactured No 230 Each 73.0000

Wearpad

3 3 12/05/10

Location	Loc Qty	Loc Code
FG	10	
79833	10	
FP002	63	
69817	5	
81360	32	
81362 ✓	22	
83254	1	
83255	3	

NAS1149C0832R Purchased No 230 Each 258.0000

WASHER

1 1 12/05/10

Location	Loc Qty	Loc Code
ST297	258	
114915 ✓	258	

Picklist Print

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Work Order ID: 83843

Parent Item: D350-636-011

Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

AN3C6A
BOLT

Purchased No

230 Each 465.0000

4 ⁴ 12/05/10

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	1	
111982	1	
ST351	464	
111982	2	
116419	23	
116549	2	
116704	12	
117619	10	
117688	1	
117872	5	
118422	13	
119449	21	
120423	3	
120693 ✓	172	
121682	200	

NAS1611-013
O-RING

Purchased No

230 Each 369.0000

8 ⁸ 12/05/10

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	369	
116582	5	
117291	2	
117887	53	
119623	36	
121584 ✓	23	
121825	200	
121826	50	

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Shop Packet Print

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Picklist Print

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Page 10

Work Order ID: 83843

Parent Item: D350-636-011

Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12

Start Qty: 1.00

Required Qty: 1.00

D3535-25 Manufactured No 230 Each 35.0000 1 1 2P 12/05/10

Wearshoe

Location	Loc Qty	Loc Code
FP001	35	
62233	1	
81357	1	
82156 ✓	3	
83387	17	
83899	13	

D3794-1 Manufactured No 230 Each 27.0000 1 1 2P 12/05/10

Gasket

Location	Loc Qty	Loc Code
FP	7	
82167 ✓	7	
FP002	20	
83395	20	

MS21043-6 Purchased No 230 Each 622.0000 4 4 2P 12/05/10

NUT

Location	Loc Qty	Loc Code
FG	20	
103693	20	
ST301	602	
117887	2	
118384 ✓	100	
120308	500	

D3493-1 Manufactured No 250 Each 27.0000 2 2 2P 12/06/08

Washer

Location	Loc Qty	Loc Code
ST050	27	
77573	1	
82023	26	

82023

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Picklist Print

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Page 11

Work Order ID: 83843
Parent Item: D350-636-011
Parent Item Name: Skidtube LH

Start Date: 4/26/12
Start Qty: 1.00

Required Date: 5/04/12
Required Qty: 1.00

MS21083C8
NUT

Purchased No 250 Each 86.0000

² ~~12104~~ ² JB SP

Location	Loc Qty	Loc Code
304	80	
121185	30	
121349	50	
FP002	1	
115884	1	
ST303	4	
115884	0	
118077	1	
119309	2	
119638	1	
ST304	1	
121524	1	

12121349

AN8C21A
BOLT

Purchased No 250 Each 61.0000

121524
² ² JB 12/06/08

Location	Loc Qty	Loc Code
ST343	61	
118758	3	
121167	8	
121275	50	

121167

NAS1515H3L
WASHER

Purchased No 230 Each 152.0000

⁴ 4 ⁴ (DP) 12/05/10

Location	Loc Qty	Loc Code
FG	40	
102472	40	
ST277	112	
118686	3	
119438	1	
120360	11	
121243	2	
121556 ✓	95	

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Page 11

Picklist Print

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Page 12

Work Order ID: 83843

Parent Item: D350-636-011

Parent Item Name: Skidtube LH

Start Date: 4/26/12

Required Date: 5/04/12


Start Qty: 1.00

Required Qty: 1.00

D2741
Blade, 350 Skidtube

Manufactured No

250 Each 26.0000

1 83135¹ JB 

Location Loc Qty Loc Code

ST -10

ST466 36

71856 1


79516 21

81834 4

D3532-1
Spacer

Manufactured No

250 Each 7.0000

2 2 JB 12/06/08 

Location Loc Qty Loc Code

ST053 7

82041 7

82041

Work Order Summary

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Page 1 of 2

Criteria : Work Order ID: 83843 Item ID: D350-636-011 Product Family SKIDTUBES
 Work Order Start Dates 4/26/12 to 4/26/12 11:59:59 PM Work Order Required Dates 5/04/12 to 5/04/12
 11:59:59 PM

All References
 Work Order Status Released

Work Order ID	83843	Required Qty	1.0000	Status Code	Released
Item ID	D350-636-011	Accepted Qty	0.0000	Scrap Qty	0.0000
Item Name	Skidtube LH				
Current Acct Value	\$1,651.776				

Start Date	4/26/12	Required Date	5/04/12	Completed Date	
Standard	** Actual **	** Acct. Value **	** Variance **	** Variance % **	
Direct Costs	Total	Each	Each	Each	Each
Material	\$55.422	\$0.000	\$352.061	\$352.061	100.00%
Labor	\$337.289	\$0.000	\$458.127	\$458.127	100.00%
Outplant	\$0.000	\$0.000	\$10.550	\$10.550	100.00%
Variable Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
Fixed Burden	\$639.945	\$0.000	\$966.335	\$966.335	100.00%
Material Burden	\$0.000	\$0.000	\$0.000	\$0.000	0.00%
** Total **	\$1,032.655	\$0.000	\$1,787.072	\$1,787.072	

Item ID/Item Name	Required Qty	Issue Code	Issue Date	Issued Qty	Cost Amount
D2600-3-BENT Extrusion Bent	1.0000		4/30/12	1.0000	\$68.565
D2743 Crossbolt Spacer	8.0000		5/07/12	8.0000	\$20.834
D2744 Cap	1.0000		4/30/12	1.0000	\$1.735
D3490-1 Cross Bolt Spacer	4.0000		5/07/12	4.0000	\$3.038
D3490-3 Cross Bolt Spacer	4.0000		5/07/12	4.0000	\$38.833
Total Matl Amts:					\$133.006

Work Center HandFinish

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
GIRA02												
140	5/02/12		0.00	0.00	0.85	0.21	4.00	\$0.000	\$4.120	\$10.242	\$0.000	\$14.36
190	5/08/12		0.00	0.00	0.54	0.27	2.00	\$0.000	\$5.211	\$12.955	\$0.000	\$18.16

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Work Order Summary

Page 1 of 2

PAQU01

5/09/12												
220			0.00	0.00	1.30	1.30	1.00	\$0.000	\$25.160	\$62.550	\$0.000	\$87.70
Total:			0.00	0.00	2.68	1.78	7.00	\$0.000	\$34.490	\$85.746	\$0.000	\$120.23

Work Center Powdercoat

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
-------------	-------------	------------	-------------	--------------------	-------------	--------------------	------------	--------------	--------------	-----------------	-----------------	---------------

GREG01

5/08/12												
200			0.00	0.00	0.95	0.95	1.00	\$0.000	\$18.424	\$45.804	\$0.000	\$64.22
5/09/12												
200			0.00	0.00	0.68	0.68	1.00	\$0.000	\$13.283	\$33.023	\$0.000	\$46.30
Total:			0.00	0.00	1.63	1.63	2.00	\$0.000	\$31.707	\$78.827	\$0.000	\$110.53

Work Center Skidtubes

Employee ID	Rout Seq ID	Labor Date	Setup Hours	Actual Setup Hours	Labor Hours	Actual Labor Hours	Nbr of WOs	Setup Amount	Labor Amount	Fix Burd Amount	Var Burd Amount	Total Amounts
-------------	-------------	------------	-------------	--------------------	-------------	--------------------	------------	--------------	--------------	-----------------	-----------------	---------------

conw01

5/03/12												
160			0.00	0.00	0.15	0.15	1.00	\$0.000	\$3.292	\$5.666	\$0.000	\$8.95
160			0.00	0.00	1.12	1.12	1.00	\$0.000	\$24.331	\$41.880	\$0.000	\$66.21

CRUI01

5/07/12												
160			0.00	0.00	2.96	2.96	1.00	\$0.000	\$64.174	\$110.460	\$0.000	\$174.63
5/08/12												
160			0.00	0.00	1.22	1.22	1.00	\$0.000	\$26.401	\$45.443	\$0.000	\$71.84

ELLI01

4/30/12												
110			0.00	0.00	0.72	0.72	1.00	\$0.000	\$15.494	\$26.670	\$0.000	\$42.16
5/07/12												
160			0.00	0.00	1.96	1.96	1.00	\$0.000	\$42.510	\$73.171	\$0.000	\$115.68

FORG01

5/01/12												
110			0.00	0.00	0.59	0.59	1.00	\$0.000	\$12.779	\$21.996	\$0.000	\$34.77

STJE01

4/30/12												
110			0.00	0.00	2.62	2.62	1.00	\$0.000	\$56.817	\$97.797	\$0.000	\$154.61
Total:			0.00	0.00	11.34	11.34	8.00	\$0.000	\$245.796	\$423.083	\$0.000	\$668.87

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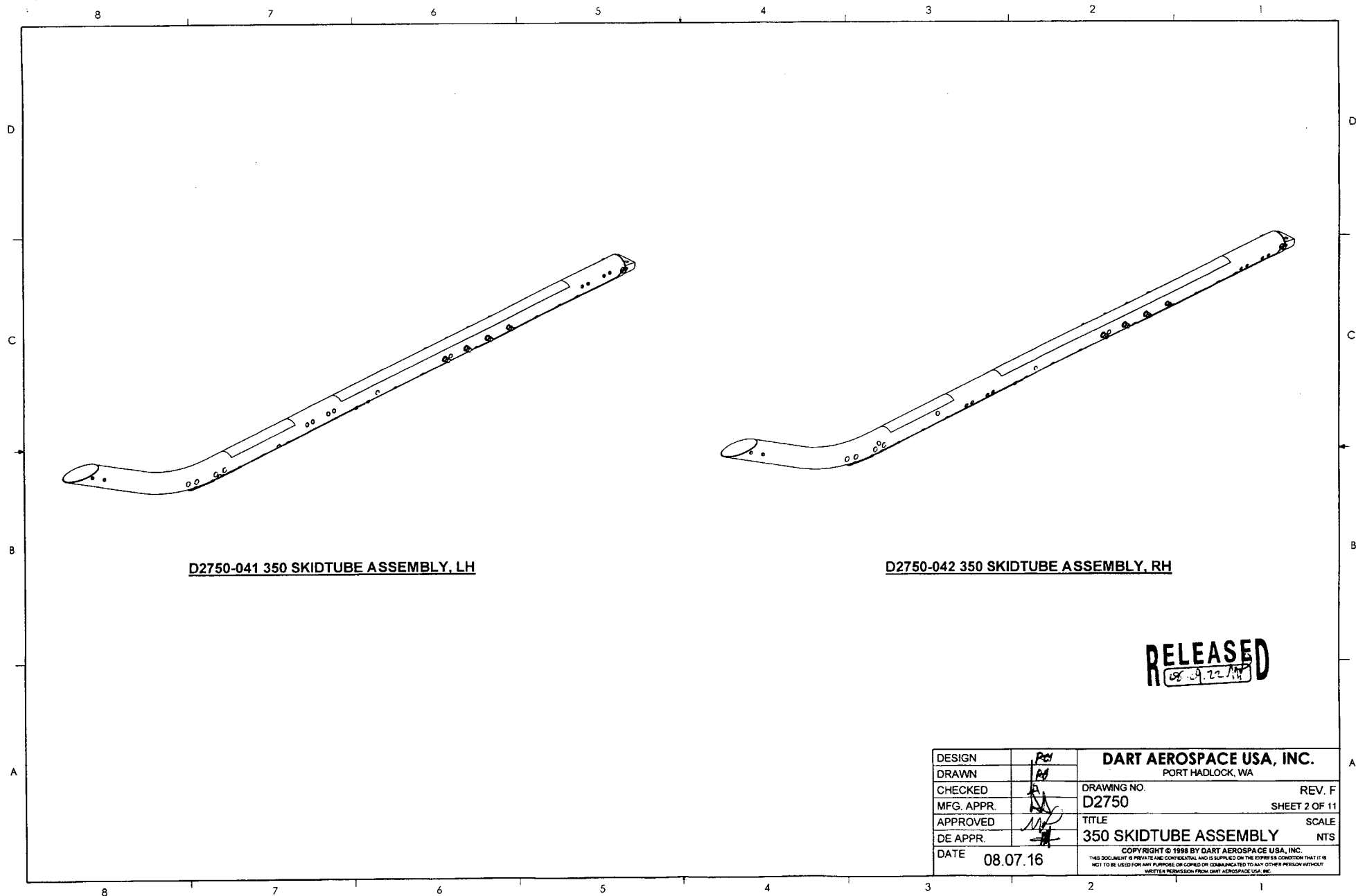
QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D2750-041	350 SKIDTUBE ASSEMBLY, LH
	X			D2750-042	350 SKIDTUBE ASSEMBLY, RH
		X		D2750-043	350 SKIDTUBE ASSEMBLY, LH
			X	D2750-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1				D2750-1	SKIDTUBE WELDMENT, LH
	1			D2750-2	SKIDTUBE WELDMENT, RH
		1		D2750-3	SKIDTUBE WELDMENT, LH
			1	D2750-4	SKIDTUBE WELDMENT, RH
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
1	1	1	1	D3535-25	WEARSHOE
1	1	1	1	D3536-25	GASKET
3	3	3	3	D3537-1	WEARPAD
8	8	8	8	D3631-1	WASHER
1	1	1	1	D3791-1	WEARPLATE
1	1	1	1	D3793-1	WEARSHOE
1	1	1	1	D3793-3	WEARSHOE
1	1	1	1	D3794-1	GASKET
1	1	1	1	D3794-3	GASKET
38	38	38	38	ALS4-1032-225	INSERT (OR ALS7-1032-225, AKS4-1032-225, AELS-1032-225)
34	34	34	34	AN3C5A	BOLT
4	4	4	4	AN3C6A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
38	38	38	38	AN960C10L	WASHER
1	1	1	1	AN960C816L	WASHER
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- MATERIAL: MAKE D2750-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- FINISH:
ACID ETCH, ALONDE ASSEMBLY PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- UNITS: INCHES UNLESS OTHERWISE NOTED
- BREAK SHARP EDGES: N/A
- IDENTIFICATION: N/A
- WEIGHT: D2750-041/-042/-043/-044 = 26.5 LBS
- WELD PER DART QSI 004
- INSTALL ALS4-1032-225 INSERTS AFTER FINISH AS INDICATED. DRILL 'F' SIZE HOLES ($\phi 0.297$) FOR WEARSHOE INSERTS
- FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
MINIMUM YIELD TENSILE STRENGTH = 35 KSI
MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS.
COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY. CLEAN EXCESS OFF
POWDER COATING WITH MEK DEGREASER.
- SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

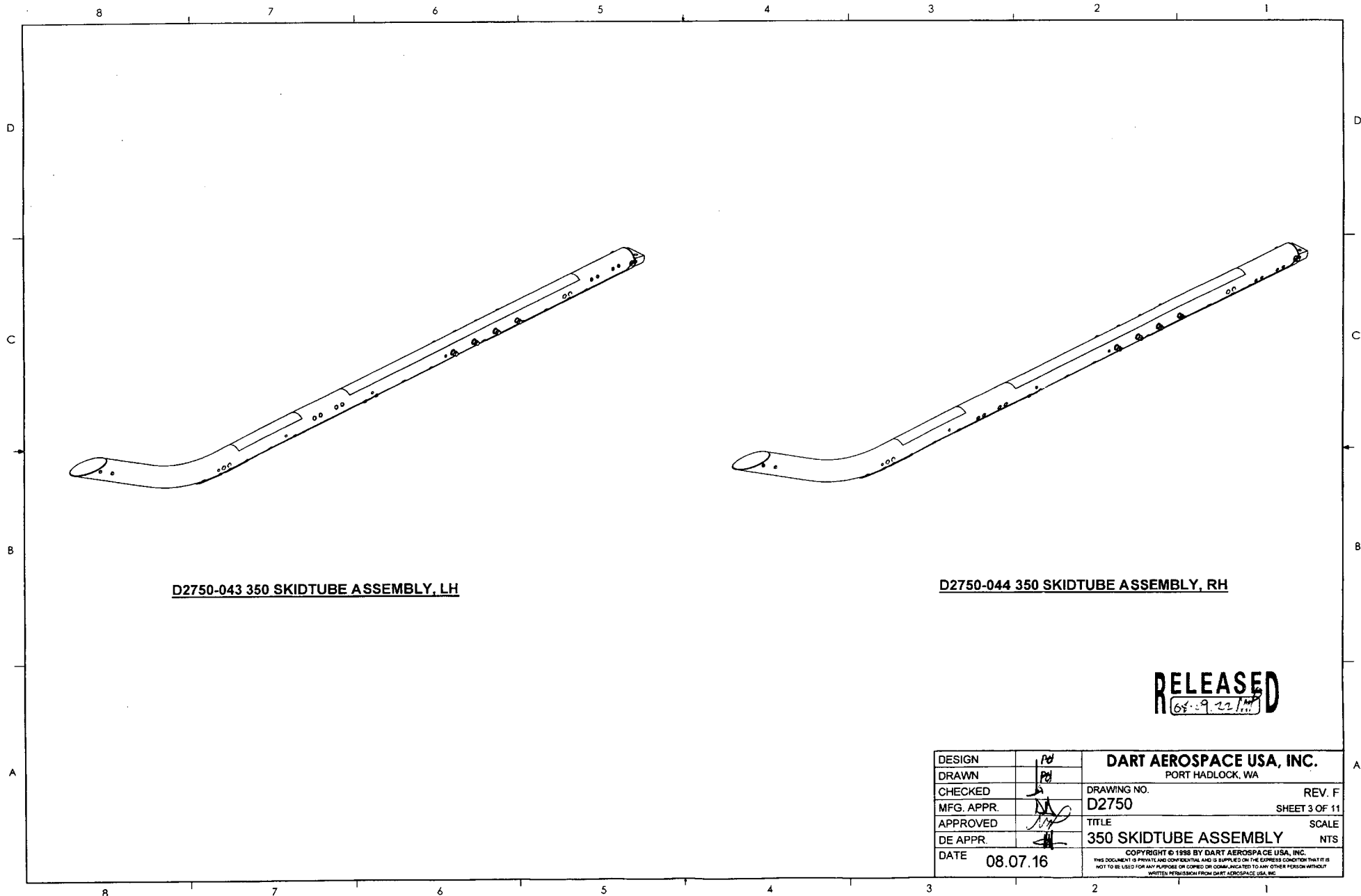
RELEASED

F	INCORPORATE DSI 9413; QTY (3) D3537-1 WAS QTY (5) (ZN C8-1); D3791-1/-3 REPLACES D3535-13/-35 (ZN C8-1); D3794-1/-3 REPLACES D3536-13/-35 (ZN B8-1); ADD D3791-1 (ZN C8-1); WEARSHOE HOLES UNDER FWD/AFT SADDLE REMOVED (8 PL). WEARSHOE HARDWARE QTY UPDATED (ZN B8-1); D3488-041/-042 HARDWARE UPDATED (ZN C1-8, 9, 10, 11); ADD NOTE 12 AND 13 (ZN A6-1); REASON: REF. NCR 08-043	PH	08.07.16
E	CHANGE TO STAINLESS STEEL WEARPLATES; ADD RUBBER GASKETS; CHANGE INSERTS; ADD D3631-1; REMOVE QTY (38) NAS1515H3L; REMOVE QTY (10) NAS1515H8L; REMOVE D2741; QTY (2) AN960C816; REMOVE QTY (2) MS21083C8	CB	07.05.17
D	ADD HOLES AND SPACERS FOR APICAL FLOATS; INCORPORATE DEC 9133/9157	PH	06.01.05
C	ADD D2750-3/D2750-4; INCORPORATE D2738 AND D2740	CP	98.11.18
B	CHANGE MS24694-S293 TO AN8-16A	CP	98.09.01
A	NEW ISSUE	DS	98.04.16
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	08.07.16		
DART AEROSPACE USA, INC. PORT HADLOCK, WA			
DRAWING NO. D2750		REV. F SHEET 1 OF 11	
TITLE 350 SKIDTUBE ASSEMBLY		SCALE NTS	
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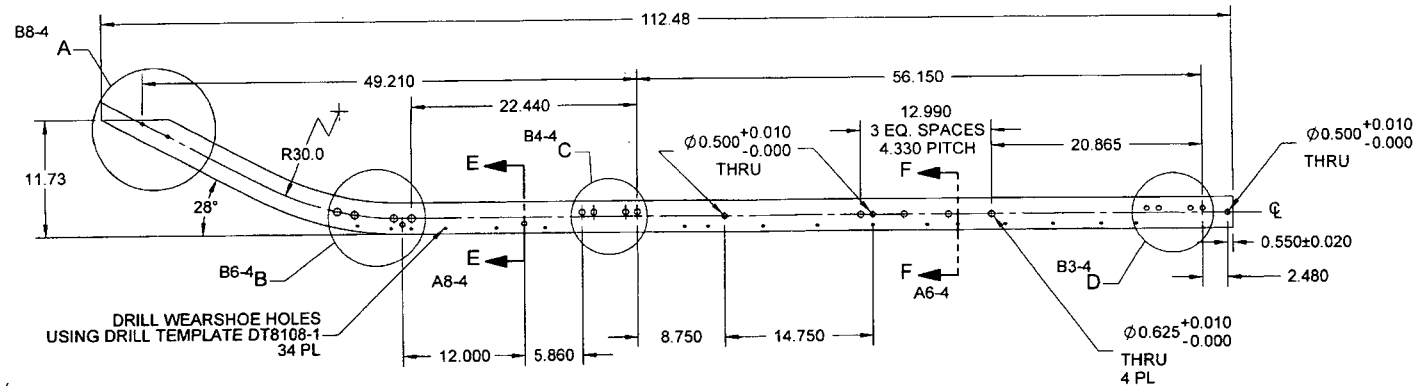
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 08-09-22-11

DESIGN	Per	DART AEROSPACE USA, INC.	
DRAWN	AD	PORT HADLOCK, WA	
CHECKED	AD	DRAWING NO.	REV. F
MFG. APPR.	AD	D2750	SHEET 2 OF 11
APPROVED	AD	TITLE	SCALE
DE APPR.	AD	350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

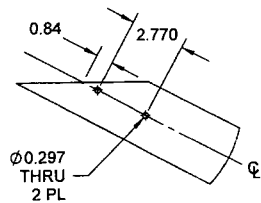


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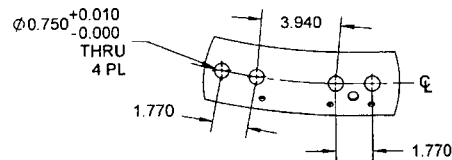
DESIGN	<i>PD</i>	DART AEROSPACE USA, INC. PORT HADLOCK, WA	
DRAWN	<i>PD</i>		
CHECKED	<i>NA</i>	DRAWING NO. D2750	REV. F SHEET 3 OF 11
MFG. APPR.	<i>NA</i>	TITLE 350 SKIDTUBE ASSEMBLY	SCALE NTS
APPROVED	<i>NA</i>	<small>COPYRIGHT © 1988 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	
DE APPR.	<i>NA</i>		
DATE	08.07.16		



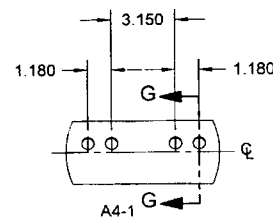
D2750-1 LH SKIDTUBE



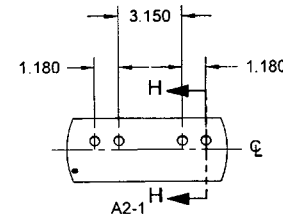
DETAIL A
SCALE 2X



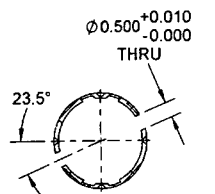
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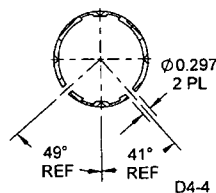
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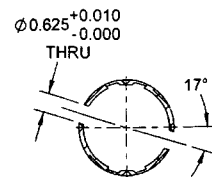
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SCALE 2X



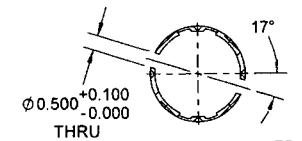
SECTION E-E
SCALE 3X, 2 PL



SECTION F-F
SCALE 3X, 17 PL



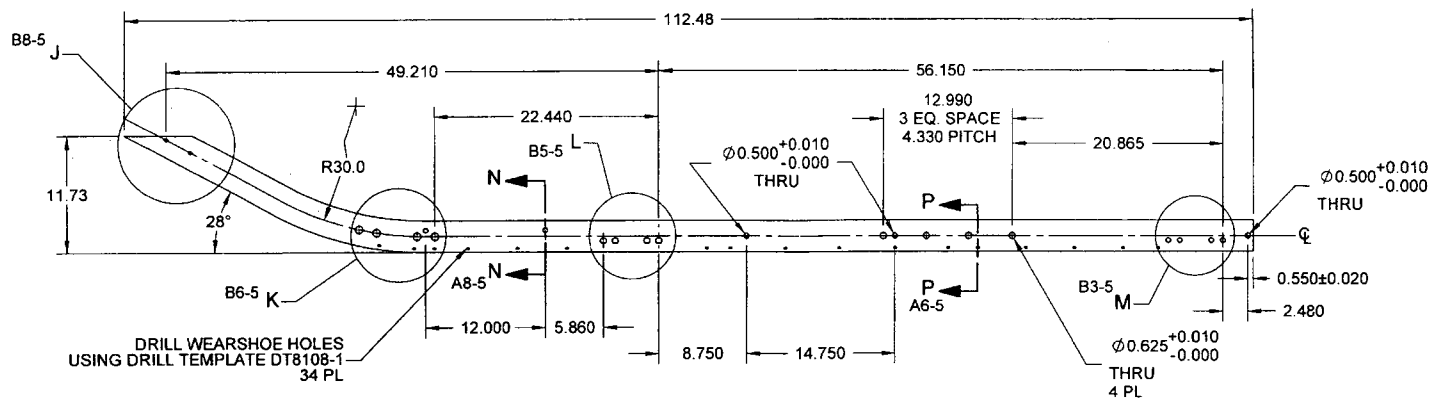
SECTION G-G
SCALE 3X, 4 PL



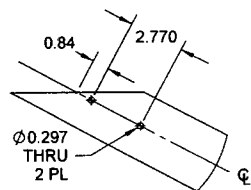
SECTION H-H
SCALE 3X, 4 PL

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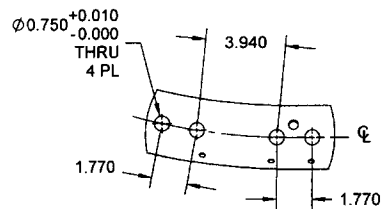
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DRAWN	IP		
CHECKED	IP	DRAWING NO. D2750	REV. F
MFG. APPR.		SHEET 4 OF 11	
APPROVED		TITLE 350 SKIDTUBE ASSEMBLY	SCALE NTS
DE APPR.		<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	
DATE	08.07.16		



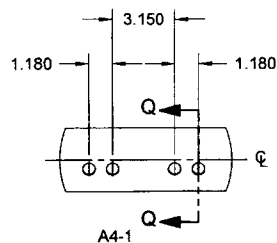
D2750-2 RH SKIDTUBE



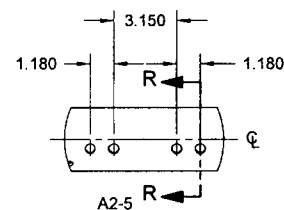
DETAIL J
SCALE 2X



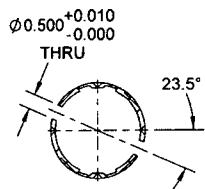
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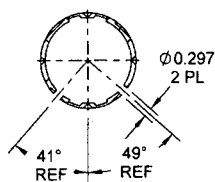
DETAIL L
SCALE 2X



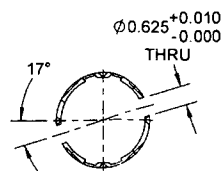
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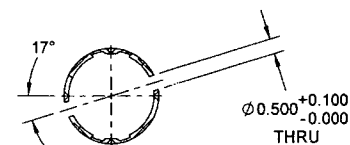
SECTION N-N
SCALE 3X, 2 PL



SECTION P-P
SCALE 3X, 17 PL



SECTION Q-Q
SCALE 3X, 4 PL



SECTION R-R
SCALE 3X, 4 PL

RELEASED

DESIGN	REV	DART AEROSPACE USA, INC.	
DRAWN	REV	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D2750	SHEET 5 OF 11
APPROVED		TITLE	SCALE
DE APPR.		350 SKIDTUBE ASSEMBLY	NTS
DATE	08.07.16	<small>COPYRIGHT © 1998 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

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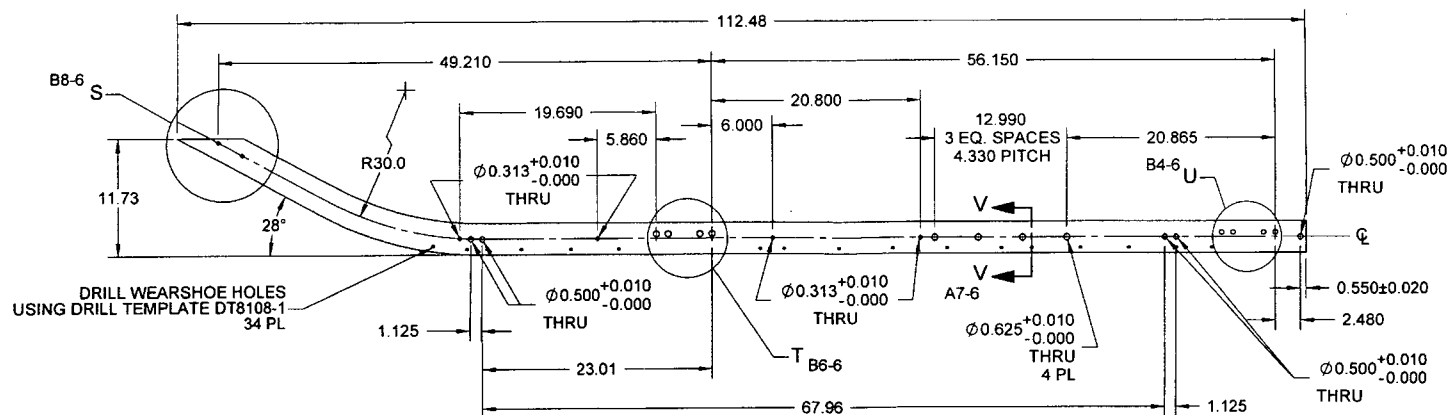
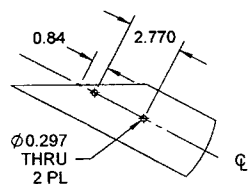
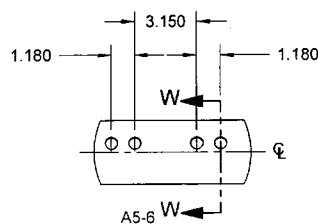
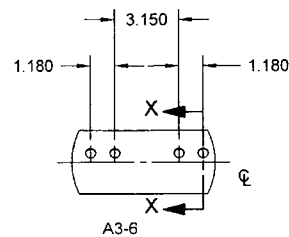
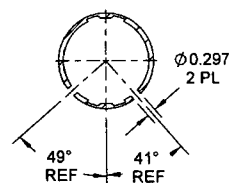
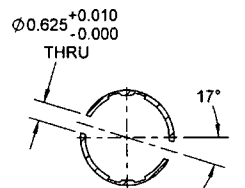
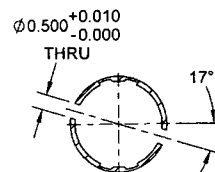
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**D2750-3 LH SKIDTUBE****DETAIL S**
D8-6
SCALE 2X**DETAIL T**
C5-6
SCALE 2X**DETAIL U**
D3-6
SCALE 2X**SECTION V-V**
C4-6
SCALE 3X, 17 PL**SECTION W-W**
B6-6
SCALE 3X, 4 PL**SECTION X-X**
B4-6
SCALE 3X, 4 PL**RELEASED**
08-07-16

DESIGN		DART AEROSPACE USA, INC.	
DRAWN		PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D2750	SHEET 6 OF 11
APPROVED		TITLE	SCALE
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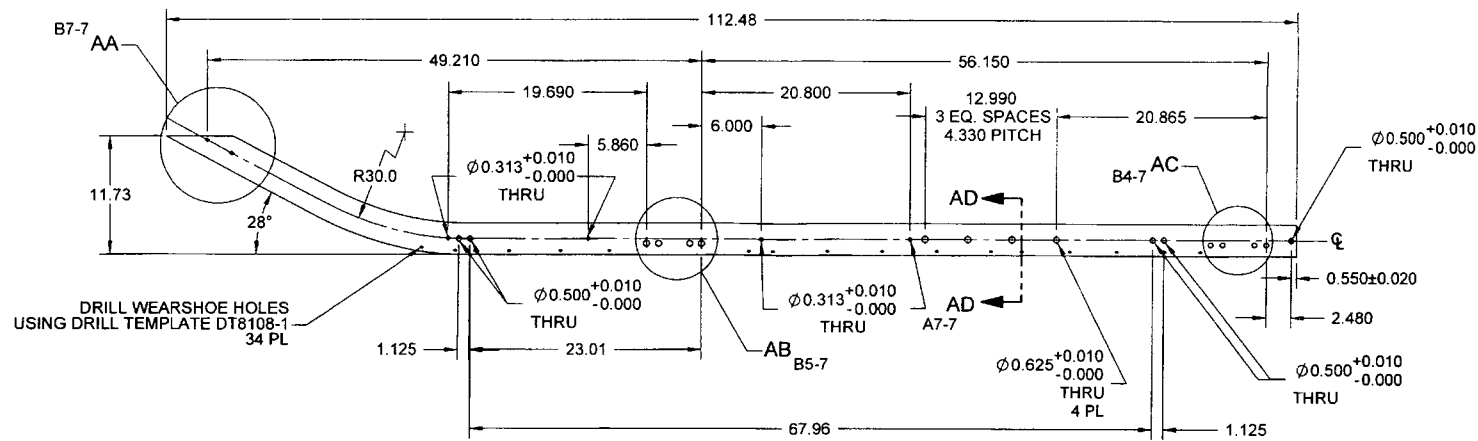
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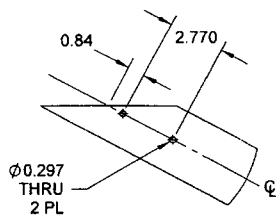
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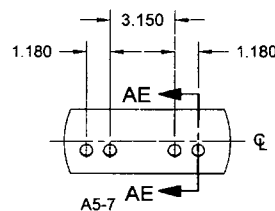
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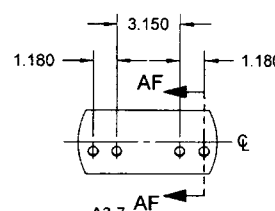
D2750-4 RH SKIDTUBE



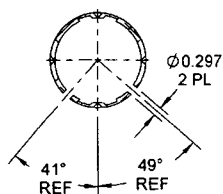
DETAIL AA
SCALE 2X
D7-7



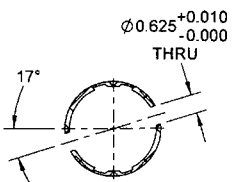
DETAIL AB
SCALE 2X
C4-7
A5-7 AE



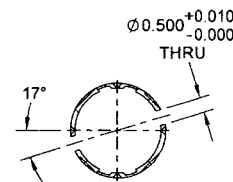
DETAIL AC
SCALE 2X
D3-7
A3-7 AF



SECTION AD-AD
SCALE 3X, 17 PL
D3-7



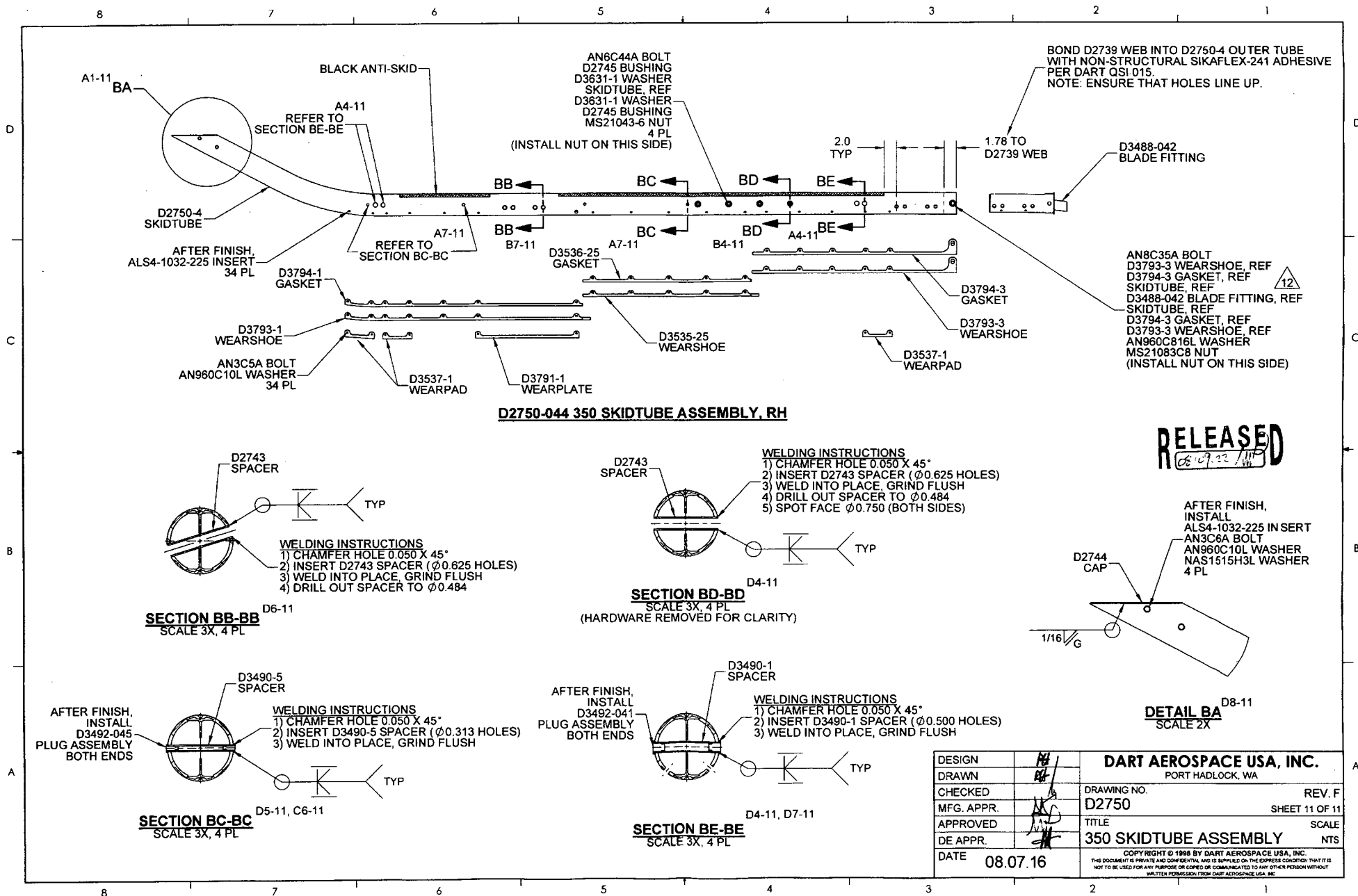
SECTION AE-AE
SCALE 3X, 4 PL
B6-7



SECTION AF-AF
SCALE 3X, 4 PL
B4-7

RELEASED
08-09-22-110

DESIGN	PA	DART AEROSPACE USA, INC.	
DRAWN	PA	PORT HADLOCK, WA	
CHECKED	PA	DRAWING NO. D2750	REV. F
MFG. APPR.	PA	SHEET 7 OF 11	
APPROVED	PA	TITLE	SCALE
DE APPR.	PA	350 SKIDTUBE ASSEMBLY	NTS
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NO. 293

AWS D17.1:2001
QUALIFICATION TEST RECORD

Name: Barclay Elliott
Job number: 82796
Part number: A350-636-014
Description: Skid tube
Welding Process: Tig[☒] Mig[]
Base material: Alum
Current: AC[☒] DC[]

TEST REQUIREMENTS AND RESULTS

Visual:

pass[☒] fail[]

Penetration:

pass[☒] fail[]

UNACCEPTABLE

Cracks:

pass[☒] fail[]

Undercut:

pass[☒] fail[]

Pin holes:

pass[☒] fail[]

Overlap (cold lap):

pass[☒] fail[]

Porosity (surface):

pass[☒] fail[]

Coloration:

pass[☒] fail[]

Qualifier David H. [Signature] Date of Test Coupon 12-05-01
Welder Barclay Elliott Date of Test Coupon 12-05-01

The above named individual is qualified in accordance with AWS D17.1:2001 to weld

DART AEROSPACE LTD		Work Order:	
Description:		Part Number:	13482041
Inspection Dwg:	Rev:	Page 1 of 1	

FIRST ARTICLE INSPECTION CHECKLIST

☒ X

First Article

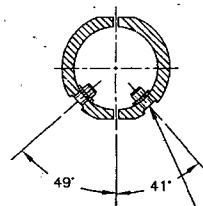
☐

Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
φ 0.50	+0.005	0.515				
φ 0.80	+0.005	0.815				
0.184 (0.5 in)	+0.005	0.489				
	+0.005	0.486				
	+0.005	0.495				
	+0.005	0.495				
	+0.005	0.490				
	+0.005	0.490				
	+0.005	0.489				
	+0.005	0.490				
0.500	+0.010 -0.000	0.525				
0.500 in	+0.010 -0.000	0.511				
1	1	0.511				
"	"	0.511				
1	1	0.511				
0.500 in	+0.010 -0.000	0.511				
1	1	0.511				
1	1	0.511				
1	1	0.511				
1.500	+0.010 -0.000	0.529				

Measured by:	Audited by:	Prototype Approval:	N/A
Date:	Date:	Date:	N/A

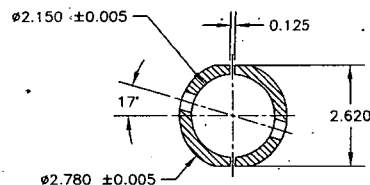
Rev	Date	Change	Revised by	Approved
A		New Issue	KJ/JLM	



SECTION B-B

Ø0.297 ±0.005
C'BORE Ø0.430 x 0.100
INSTALL ALS4-1032-225 (OR AKS4-1032-225
OR ALS7-1032-225 OR AKS7-1032-225)
INSERTS AFTER FINISH
(4 PLACES)

4



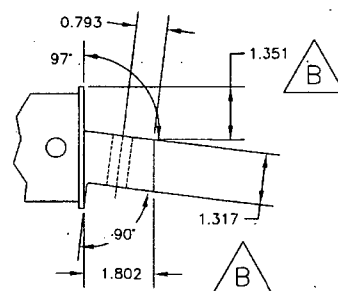
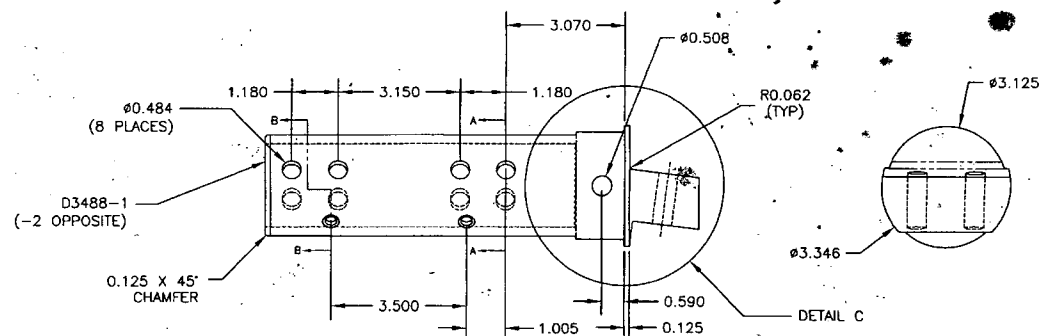
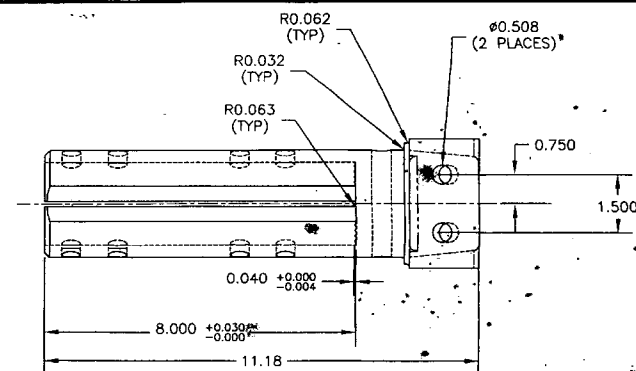
SECTION A-A

D3488-041/-042 BLADE FITTING ASSEMBLY PARTS LIST

QTY	QTY	PART NUMBER	DESCRIPTION
041	042		
X	X	D3488-041	BLADE FITTING ASSEMBLY (LH)
		D3488-042	BLADE FITTING ASSEMBLY (RH)
		D3488-1	BLADE FITTING (LH)
		D3488-2	BLADE FITTING (RH)
		ALS4-1032-225 or AKS4-1032-225 or ALS7-1032-225 or AKS7-1032-225	INSERT

D3488-041/-042 BLADE FITTING

- MATERIAL: MAKE D3488-1/-2 FROM ALUMINUM 7075-T7351 ROUND BAR PER QQ-A-225/9 (REF. DART MATERIAL SPEC M7075T73R)
- FINISH: ACID ETCH, ALODINE PER DART QSI 005 4.1 POWDER COAT WHITE (REF 4.3.5.1) PER DART QSI 005 4.3
- BREAK UNMARKED SHARP EDGES 0.010 TO 0.020
- INSTALL INSERTS AFTER POWDER COAT
- ALL DIMENSIONS ARE IN INCHES
- TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED



DETAIL C

D3488-041 SHOWN (D3488-042 OPPOSITE)

RELEASED
06.03.15
REV. 05
EON #737

B	06.03.15	CHANGE THICKNESS
A	05.12.20	NEW ISSUE
DESIGN	PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED	PH	DRAWING NO. D3488
DATE	06.03.15	TITLE BLADE FITTING
		REV. B SHEET 1 OF 1 SCALE 1:3

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